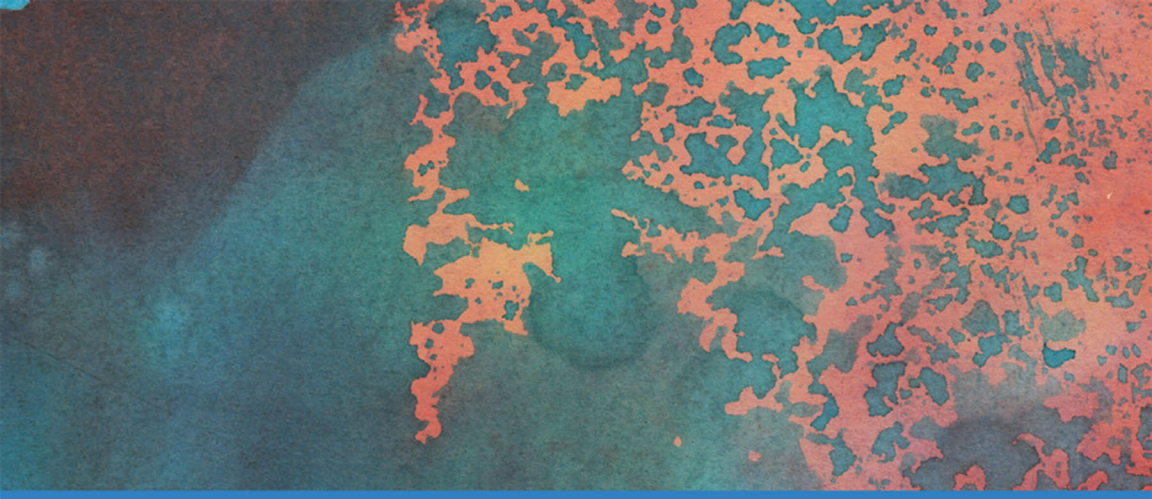

Routledge Studies in Hispanic and Lusophone Linguistics

DIALECTS FROM TROPICAL ISLANDS

CARIBBEAN SPANISH IN THE UNITED STATES

Edited by
Wilfredo Valentín-Márquez and
Melvin González-Rivera

Series Editor: Dale Koike
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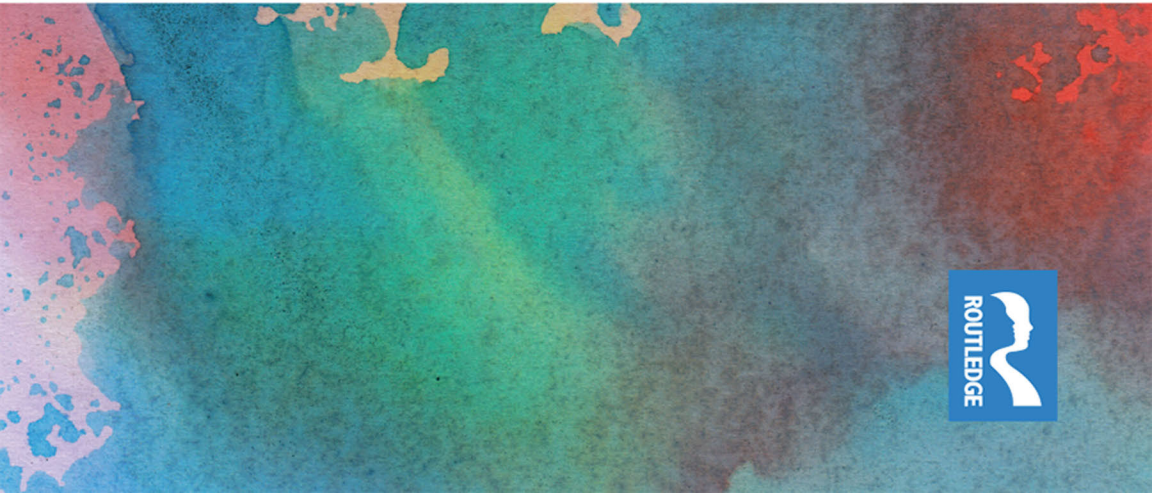

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A mis hijos Edwin y Nelson, quienes me mantienen al día con las innovaciones del español puertorriqueño.

—Wilfredo

A Alma Simounet, con el mayor de los agradecimientos.

—Melvin

Contents

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Introduction

Caribbean Spanish dialects in the United States: theoretical, empirical, and sociolinguistic perspectives

Wilfredo Valentín-Márquez
and Melvin González-Rivera

This volume aims to provide a comprehensive state of the art of current research on Caribbean Spanish in the United States from different theoretical perspectives and linguistic areas. Specifically, it highlights current scholarship and linguistic analyses on three major areas that correspond to the sections in which the book is organized: (1) phonological and phonetic variation, (2) morphosyntactic approaches, and (3) sociolinguistic perspectives.

The term "Caribbean Spanish" refers here to a linguistic cluster of three dialects: the Spanish spoken in Cuba, Dominican Republic, and Puerto Rico by the 25 million inhabitants of those islands and the 7 million speakers in the mainland United States who identify themselves as Caribbean Hispanics according the U.S. Census 2010. We also consider the territories of Puerto Rico and the US Virgin Islands as part of the geographic scope of the term "the United States" in the title of this volume.

Although each of the Caribbean Spanish varieties has its own distinctive characteristics, their grouping into a single category is based not only on geographic proximity but also on the structural features shared by them. In a global vision of the region, the term "Caribbean Spanish" may include the Spanish varieties of Panama, coastal Colombia, coastal Venezuela, and parts of coastal Central America and Mexico. However, due to the obvious constraints of a volume of this nature, we limit the term here to the native varieties of the Hispanic insular Caribbean exclusively: Cuba, Dominican Republic, and Puerto Rico. In tune with this particular criterion, we have the phrase "dialects from tropical islands" in the title, therefore excluding Panama, Colombia, Venezuela, Central America, and Mexico.

Along with the scrutiny of dialectal peculiarities regarding the internal structure of the Spanish language, this collection includes studies that contextualize Caribbean Spanish in a social dimension, including a look into the implications that the linguistic projection of a particular Caribbean identity has for intra- and interethnic relations. Regarded among the most innovative varieties of the language, Caribbean Spanish dialects are of interest to linguistic research, and the conditions for language and dialect contact set in the United States make this group a fascinating object of study.

In the first section, Phonological and phonetic variation, Chapter 1 examines variation in the production of the PRS trill /r/ in two cities of Western Massachusetts with large Puerto Rican populations, Holyoke and Springfield. Alba Arias studies which phonetic realizations are the most common and which factors might predict their use, paying special attention to the backed /r/ ([x], [χ]) and analyzing the transmission of the trill realization among first- and second-generation PRS speakers.

In Chapter 2, Michelle F. Ramos-Pellicia compares the usage patterns of the variants of /ɾ/ and /l/ among three generations of speakers in two Puerto Rican communities, one in the US East Coast and one in the US Midwest. She also explores whether the third generation's variety displays phonological patterns comparable in frequency and environment to those found in the first and second generations in both communities. The results show that Puerto Ricans on the East Coast demonstrated a preference for lateralization in word-final position, whereas the preference for [ɾ] declines across the three different generations of Midwest Puerto Ricans. The combination and interaction of linguistic (e.g., phonological environment, lexical context) and extralinguistic factors (e.g., level of education, exposure to and use of Spanish within the community, linguistic isolation, and negative prestige) result in the patterned use of the variants of /ɾ/ and /l/ in both communities.

In Chapter 3, Brandon M.A. Rogers and Scott M. Alvord study contact-induced change on Miami-Cuban Spanish and English phonology. They acoustically examine Miami-Cuban Spanish and English /l/. Miami Cubans from three immigrant groups were recorded in both Spanish and English, and tokens of /l/ from both Spanish and English were then extracted and measured for "lightness" or "darkness" by subtracting the F1 measurements from their corresponding F2 measurements. Results are indicative of Miami-Cuban English /l/ being less resistant to contact-induced change than its Spanish counterpart.

In Chapter 4, Almeida Jacqueline Toribio and Aris Moreno Clemons contribute additional insight to the understanding of the unwarranted appearance of [s] in Dominican Spanish being conditioned by phonological and social factors. They examine ways in which [s]-maintenance and [s]-intrusion are sanctioned in everyday interactions and in public discourse. Their work draws on observations of the incidence of coda-[s] in the audio and visual landscapes of Dominican Republic and on its representation and evaluation on social media and press outlets in national and diasporic communities.

In Chapter 5, Wilfredo Valentín-Márquez examines the distribution of the main variants of /r/ among Puerto Ricans in Grand Rapids, Michigan, a city where Puerto Ricans are a minority in the total population and also in the Hispanic community. Since opportunities to find Puerto Rican speakers whose social ties put them in more frequent interaction with speakers of other varieties are greater in a city where they constitute a smaller fraction of the Hispanic population, Grand Rapids provides a favorable scenario to study the effects of language and dialect contact on PRS. Hence, while the central part of the investigation is a quantitative analysis of the sociolinguistic variation of /r/ based on age and

gender, the study also seeks to determine whether differences associated with the speakers' maintenance of social ties within their national group provide explanatory insight into the distribution of /r/.

In Section 2, Morphology and syntax, Chapter 6 reports on the placement of subject personal pronouns by first- and second-generation Spanish-speaking Caribbeans in New York City. Carolina Barrera-Tobón and Rocío Raña Risso observe that differences across and within generations in pronominal subject placement are conditioned by speakers' English skills, socioeconomic status, and education. They examine whether these differences can be explained as a consequence of the differential input for acquisition of Spanish received by the first- and second-generation speakers—in other words, as evidence of the development of a dialect of Spanish in transition from a Caribbean variety to a US variety, with a word order more similar to that of English.

In Chapter 7, Ana de Prada Pérez and Inmaculada Gómez Soler explore preferences in subject expression forms among Spanish heritage speakers enrolled in a public university in Florida. They examine the effects of language contact on subject expression in heritage speakers of different proficiencies (high vs. low) and varieties (Caribbean vs. non-Caribbean), contrasting data from two different grammatical persons (first *yo* "I" and third *él/ella* "he/she") and three speech connectivity contexts.

Finally, Section 3 includes chapters based on sociolinguistic perspectives. In Chapter 8, Daniel S. D'Arpa discusses how Spanish spoken by Dominicans on St. Thomas, US Virgin Islands, shows evidence of influence from English-language features that are consistent with Dominican Spanish in other contact environments and some new features that are emerging as the result of uniquely St. Thomas English Creole influences. Since Dominicans on St. Thomas report that they are not fully accepted by English-speaking St. Thomians, this paper considers the social aspirations of Dominicans and whether their language choices are explained by these social pressures. Additionally, it examines how Dominican youths make language choices that function as speech acts in which they mean to negotiate their identity on a spectrum between assimilating to St. Thomian culture and choosing solidarity with their Dominican heritage.

In Chapter 9, Eva-María Suárez Büdenbender examines Puerto Ricans' attitudes and perceptions toward their own dialect and other varieties of Spanish. She reports on largely positive views of PRS, although the effects of bilingualism with English and the increase of code-switching in younger speakers is of concern to many participants. Also, the informants appear to seek to distance themselves from other Caribbean varieties. Furthermore, the attribution of linguistic prestige seems to be guided by the perceived socioeconomic status and level of education of the speakers of these varieties.

In Chapter 10, Ana Celia Zentella investigates the effects of linguistic and cultural swamping on the linguistic practices and identities of Puerto Ricans far from their primary island and mainland bases. She reports on the results of research in San Diego, where Puerto Ricans live 30 miles from the Mexican border and constitute less than 1% of the population. Interviews and vocabulary questionnaires

probe the extent to which PRS in San Diego has changed as a result of contact with Mexican Spanish and the impact on Puerto Rican identity. Of particular interest are the familial, gender, economic, cultural, and political variables that make most continue to speak in traditional ways, while some switch to Mexican vocabulary and phonology completely or selectively. Despite experiencing some negative Mexican attitudes toward PRS, there was unanimous support for Mexicans, for the maintenance of Spanish in general, and for PRS in particular. However, Zentella argues that the loss of Spanish in the next generation militates against the formation of a PR-Mex koine and may be responsible for relaxing the Spanish requirement for Puerto Rican identity.

In Chapter 11, Teresa Satterfield and José R. Benkí Jr. present a new US Spanish variety termed "US Afro-Spanish," which likely originated in US East Coast communities with racially diverse Spanish-speaking Caribbean immigrants in intense contact with Anglophone African Americans. They explore this variety's status as a Spanish ethnolect/in-group sociolect, documenting its phonetic and phonological bases through acoustic analyses and demonstrating its salient morphosyntactic features. The authors hypothesize that, as urban US-Caribbean Latino youth navigate intricate social networks, they reject sociocultural markers of "whiteness" to intentionally extend stigmatized "black" linguistic indices across a bilingual repertoire of English and Spanish, thereby constructing new identities as 21st-century American youth of color.

Compared to the significant presence of Caribbean Hispanics in the United States, current research on this population—and crucially its ramifications to areas such as language contact, change, and education—has been somehow underexplored. New theoretical perspectives and analyses have been desperately called for given the increasing interest in this area of research among graduate students and scholars.

The goal of this volume is to cover these existing lacunae on Caribbean Spanish in the United States by providing a state-of-the-art collection of articles from different perspectives and linguistic areas, maintaining a coherence among its contents in spite of the varied approaches. Because the book focuses on the native varieties of the Hispanic insular Caribbean spoken in the United States and in US territories, where interaction with speakers of English and of other Spanish dialects occurs, the common thread defining the cohesiveness of the chapters stems from a contact linguistics framework.

We thank all the contributors and reviewers who helped us complete this project and are glad to offer an encompassing state-of-the-art review on Caribbean Spanish in the United States.

Section 1

Phonetics and phonology

1 Rhotic realizations of the Puerto Rican community in Western Massachusetts and Puerto Rico

Alba Arias

1. Introduction

The Spanish trill /r/ is described as having two or more brief occlusions between the tongue apex and the alveolar ridge (Martínez Celdrán, 1998). However, outside of the prescriptive description, experimental studies have shown an enormous amount of variation in the actual production of trills (Díaz-Campos, 2008; Willis, 2006, 2007; Willis & Bradley, 2008). This study focuses on language variation in the Puerto Rican diaspora in Western Massachusetts, a community where due to the unique legal situation between Puerto Rico and the United States, back-and-forth migration waves have taken place since 1950 (Center for Puerto Rican Studies, 2016). More concretely, this analysis provides a comprehensive description of onset trill in the cities of Holyoke and Springfield (Western Massachusetts) in order to identify differences between those trill realizations found in the diaspora and in Puerto Rico. Both linguistic and sociolinguistic factors are examined (Beaton, 2015; Delgado-Díaz & Galarza, 2015; Ramos-Pellicia, 2004; Valentín-Márquez, 2007). In this manner, the present study addresses larger questions in the field regarding social factors underlying language variation in diasporic communities.

2. Background

2.1 A sociolinguistic context: Puerto Rican diaspora

The United States is home to the second largest Spanish-speaking population in the world: more than 46 million speakers (Instituto Cervantes, 2017). The vitality of US Spanish is due to the high immigration rates from several Spanish-speaking countries over decades, with most of the Latino population coming from Mexico (65% of all US Latinos), followed by Puerto Ricans (9%), Cubans (4%), and Dominicans (2.8%) (Pew Hispanic Center, 2012; Potowski, 2015).

Interestingly, the Latino population in the state of Massachusetts does not reflect these numbers. Although Mexicans are the largest origin group in the United States, Puerto Ricans are the dominant group in Massachusetts, making up 46% of its total Latino population (Pew Hispanic Center, 2012). In urban

centers in Western Massachusetts specifically, there has been a historical presence of Puerto Ricans, with migrations occurring since 1950. Puerto Ricans often migrated directly from the island to Western Massachusetts to work in tobacco fields, but others originally immigrated to New York City or Hartford, Connecticut, but moved north in search of employment in seasonal agriculture and blue-collar industries (Our Plural History, 2008). The Puerto Rican population in Massachusetts has increased over the past decades, reaching 266,125 habitants in 2010 (U.S. Census Bureau, 2010), or 9.6 % of the total population of Massachusetts. Two of the cities where Puerto Rican settlements were established are the cities of Holyoke and Springfield. Springfield, on the eastern bank of the Connecticut River, has an estimated population of 153,060 (U.S. Census Bureau, 2010). Holyoke, 8 miles north, has a population of 40,135 (U.S. Census Bureau, 2010). Holyoke has the largest population per capita of Puerto Ricans outside the island of Puerto Rico, while Springfield ranks 7th (U.S. Census Bureau, 2010). With the exception of the impressionistic work of Shouse de Vivas (1986), the variety of Spanish spoken in the urban centers of Holyoke and Springfield remains unexplored. This circumstance justifies the importance of analyzing Puerto Rican Spanish (PRS) in Massachusetts. In this study, we are concerned specifically with the phoneme /r/.

2.2 Phonetic description and distribution of /r/

According to traditional phonological descriptions, Spanish has two contrastive rhotic sounds, the *vibrante simple* "tap" /ɾ/ and the *vibrante múltiple* "trill" /r/. The Spanish trill /r/, the linguistic variable of interest in this project, is described as having two or more brief occlusions between the tongue apex and the alveolar ridge for its normative realization (Hualde, 2005; Martínez Celdrán, 1998). Recasens and Pallarés (1999) point out that this rhotic presents a certain articulatory difficulty, requiring precise control of aperture and airflow with minimal deviation in oropharyngeal and subglottal pressure (Henriksen, 2014). This fact may explain why outside of the traditional description, experimental studies have shown an enormous amount of phonetic variation in the trill that differs in place of articulation (coronal, velar, and uvular), manner of articulation (approximants, fricatives, taps, flaps, and vocoids) and laryngeal setting (voiced, voiceless, and breathy voiced) (Blecua Falgueras, 2001; Bradley & Willis, 2012; Díaz-Campos, 2008; Henriksen & Willis, 2010; Henriksen, 2014; Willis, 2006, 2007; Willis & Bradley, 2008).

Regarding distribution, the trill contrasts with the tap in intervocalic position, resulting in minimal pairs such as *para* "for" vs. *parra* "vine." Outside of this context, taps and trills can be in complementary distribution: trills appear in word-initial position or after a heterosyllabic consonant (e.g., *rosa* "rose" and *Israel* "Israel"), while taps occur after a tautosyllabic consonant in an onset cluster or word-final position before a vowel-initial word. Taps and trills can also show free variation in word-medial position before a consonant and in word-final position before a consonant or a pause (Hualde, 2005). For the

purpose of this study, trill variation will be analyzed in intervocalic position, where this segment is clearly contrastive, as well as in word-initial and after /n,l,s/ positions where the trill is also commonly produced.

2.3 Variation of /r/: Puerto Rican Spanish

Variation in the production of the phonemic trill has served as a defining feature of Spanish dialectal variation in both Latin American and Peninsular varieties (Lipski, 1994). PRS is not an exception in terms of trill variation. In fact, as many as 11 realizations have been reported: [ɾ̞], [r], [h], [hɾ̞], [hr], [ɹ], [xr], [xɾ̞], [x], [R], [χ] (Graml, 2009; Hammond, 2000; Hualde, 2005; Navarro Tomás, 1948; Valentín-Márquez, 2007). This variation is known to depend on linguistic factors (e.g., word position or stress) as well as sociolinguistic factors (e.g., whether speakers are from urban vs. rural regions of Puerto Rico or the prestige attributed to those realizations) (Graml, 2009; Medina-Rivera, 1997). Some studies that have analyzed the PRS trill were constrained to the island of Puerto Rico, analyzing not only the metropolitan area (San Juan) (López Morales, 1983; Matta de Fiol, 1981; Navarro Tomás, 1948) but also non-metropolitan regions (Caguas, Mayagüez, Cabo Rojo, etc.) (Delgado-Díaz & Galarza, 2015; Graml, 2009; Medina-Rivera, 1997). Other studies, while not strictly focused on rhotics, analyzed the Puerto Rican trill in the US mainland (Lamboy, 2004; Valentín-Márquez, 2007), making also a further step comparing PRS in the diaspora with the one spoken on the island (Ramos-Pellicia, 2004; Valentín-Márquez, 2007).

The backed /r/, which has different variants itself (e.g., [x], [χ]), is considered a salient feature of PRS, just as we find phenomena such as coda /s/ weakening [eh.tá] for *estás* or liquid neutralization [a.mól] for *amor* (Potowski, 2015). With respect to the socio-indexical meaning of backed articulations of /r/, members of the speech community have been shown to associate it with rural origin or low sociocultural level (Graml, 2009; Medina-Rivera, 1997). Other studies, however, reveal positive attitudes toward backed realizations, seen as a sign of Puerto Ricanness (Lamboy, 2004; Medina-Rivera, 1997).

Beginning with Navarro Tomás's study of the Spanish of Puerto Rico in 1948, there has been a rich body of sociolinguistic research focused on the backed /r/ in PRS. These studies typically involve production work showing that the realization can be predicted by both sociolinguistic and linguistic factors. Most studies find that the backed variant is more prevalent in intervocalic position, as well as when the rhotic is produced in the lexically stressed syllable of a word (Graml, 2009). Sociolinguistic factors affecting the use of the backed variant include gender (more frequent for males), origin (more frequent for rural speakers), and age (more frequent for middle-aged adults) (López Morales, 1983; Matta de Fiol, 1981). Moreover, the production of the backed variant has been shown to be more common in informal interviews than in more controlled experiments (Graml, 2009; Medina-Rivera, 1997). Of specific interest for the present study are the comparative studies that investigate the use of the trill in the Puerto Rican diaspora in the US mainland. Valentín-Márquez (2007) compared rhotics

in the PRS spoken in Grand Rapids, Michigan, to the PRS spoken in Cabo Rojo, Puerto Rico, finding a similar distribution of backed /r/ in both communities, with the backed variant being more common in word-initial position and in unstressed syllables. Notably, this finding regarding stress contradicts the studies just mentioned (Graml, 2009), suggesting differences even among PRS varieties (in Puerto Rico or in the US mainland). Moreover, in contrast to prior studies, for the PRS spoken on the island (Graml, 2009), Valentín-Márquez found no significant differences in gender. In the case of Cabo Rojo, the backed /r/ (frequency distribution of 16%) is more common among middle-aged speakers. For Grand Rapids, the same realization (15% frequency distribution) is produced significantly more among speakers with lower levels of education and when using terms related to Puerto Rican nationality (e.g., *puertorriqueño*, "Puerto Rican"). On the other hand, Ramos-Pellicia (2004) analyzed (in addition to other linguistic variables), rhotics in syllable-final and word-final positions across three generations of PRS speakers in Lorain, Ohio. She also explored this variation on the island of Puerto Rico to determine whether PRS in Lorain displays different or similar patterns in the production of rhotics in those specific positions. For speakers in both Lorain and Puerto Rico, lateralization, trill, retroflection, and deletion were reported. Results reveal that PRS speakers in Lorain and on the island follow a similar pattern in the production of /r- ɾ/. However, in Lorain, speakers produce more retroflection, which is almost never used on the island. An interesting finding is that the preference of the normative trill declines across the three generations in Lorain, with the first generation favoring normative /r/ and the third generation using more lateralization and more retroflex /r/ than the second and first generations.

3. Present study

The present study contributes to the body of research on language use in language-contact situations, analyzing the transmission of the trill realization in two different Puerto Rican communities: the Western Massachusetts diaspora and Puerto Rico. Specifically, it pays special attention to the backed /r/ realization. Linguistic and sociolinguistic factors are examined to shed light on the potential trill variation and to show whether or not there are differences among the realizations found in Puerto Rico versus Western Massachusetts. For this diasporic setting, we focus on the cities of Holyoke and Springfield because of their large Puerto Rican populations.

3.1 Research questions and hypotheses

RQ1. Is there trill variation in the Puerto Rican community in Western Massachusetts? If so, does it mirror the trill variation found on the island? Specifically, is the backed /r/ among the allophones produced?

H1. Since previous studies have shown that there is variation in trill production on the island and in other diaspora settings (Graml, 2009; Hammond, 2000;

Valentín-Márquez, 2007), we hypothesize that there will also be trill variation in Western Massachusetts. Moreover, given that back-and-forth migration waves between Puerto Rico and Massachusetts have been in constant increase since 1950 (Center for Puerto Rican Studies, 2016), we predict that the same trill variants found in the aforementioned Western Massachusetts communities will occur on the island. Since Lamboy (2004) and Valentín-Márquez (2007) reported the presence of backed /r/ in the diaspora, we predict that this variant will also be produced in Massachusetts.

RQ2. If we find similar trill variation, are the predictors (sociolinguistic and linguistic) of the use of /r/ variants similar in the two settings?

H2. Given the back-and-forth migration waves previously mentioned, the hypothesis is that the factors that might predict the use of /r/ variants will be similar in both settings. Specifically, we predict that linguistic and sociolinguistic predictors such as stress (Graml, 2009; Valentín-Márquez, 2007); word position (Graml, 2009; López Morales, 1983); generation (Ramos-Pellicia, 2004); gender (Matta de Fiol, 1981); age (Graml, 2009; Medina-Rivera, 1997); origin (Graml, 2009); and type of task (Medina-Rivera, 1997) affect trill variation.

4. Methodology

4.1 Materials

During the first ten minutes, participants were engaged in an informal conversation about family life, school or work to solicit natural conversation, before the linguistic experiment. Afterward, three experimental production tasks were performed to answer the aforementioned research questions: a picture description task, a map task, and a reading task. The narration of the children's picture book by Mercer Mayer, *Frog, Where Are You?* (1969), elicited multiple productions of the trill segment (/pé.ro/ dog, /rá.na/, frog). This task is common in the research on trill variation in Spanish (Henriksen & Willis, 2010; Willis, 2007; Willis & Bradley, 2008). In the map task, participants collaborated with the experimenter to reproduce a route shown on their map. Participants produced target sentences written on the map that contain the phonemic trill segment in intervocalic position (n = 3) (i.e., *parroquia del pueblo*, town's parish), word-initial position (n = 3) (i.e., *rosas de la bahía*, bay's roses) and after /n,l,s/ (n = 3) (i.e., *avión israelí*, Israeli plane). In addition, participants read a total of 24 words (12 targets and 12 fillers) embedded in the frame sentence *Diga____otra vez*, with the same three conditions considered in the map task. Fillers and target words were produced in random order, and the speaker read a single repetition. As in the map task, the 24 words were checked with a PRS speaker from the community to confirm that all tokens are familiar in the Puerto Rican variety. The last activity was a written language background questionnaire to get all linguistic and extralinguistic information for each participant. The experiment took approximately 45 minutes for each participant.

4.2 Participants

Two groups of ten participants took part of the experimental task: one group of Puerto Rican speakers was recorded for the US mainland variety of PRS (Holyoke and Springfield) and the other group for the island variety (see Table 1.1). The group recorded in Massachusetts was controlled in terms of their origin on the island: metropolitan (San Juan, Bayamón) vs. non-metropolitan area (San Lorenzo, Florida, Salinas, Comerío). Moreover, participants were divided according to generation (first or second), considering Silva-Corvalán's criteria (1994). The group recorded on the island was also controlled by origin: metropolitan (Bayamón, San Juan) vs. non-metropolitan areas (Ponce, Cayey, Caguas, Vega Baja, Humacao). Participants were paid for their participation from grant funds provided by The Cognitive Science Initiative of the University of Massachusetts, Amherst.

4.3 Equipment

Participants were recorded in a quiet room or in a laboratory setting. US mainland data were collected between November and December 2015. Puerto Rican data were collected in April 2016.

Recordings were made with a Samson Zoom H2 Handy Digital Recorder at a sampling rate of 44,100 Hz with a head-mounted microphone. Participants were told to talk how they would in a natural situation.

Table 1.1 Demographic and linguistic information for each participant

#	*Generation*	*Origin*	*Place*	*Gender*	*Age*
1	Second	Comerío	Massachusetts	Male	23
2	First	Salinas	Massachusetts	Female	60
3	Second	Bayamón	Massachusetts	Female	21
4	Second	San Lorenzo	Massachusetts	Female	24
5	Second	San Lorenzo	Massachusetts	Female	57
6	First	San Juan	Massachusetts	Female	55
7	First	Florida	Massachusetts	Male	41
8	Second	Salinas	Massachusetts	Female	45
9	Second	Humacao	Massachusetts	Female	55
10	First	San Juan	Massachusetts	Male	49
11	First	Ponce	Puerto Rico	Male	24
12	First	Bayamón	Puerto Rico	Female	22
13	First	San Juan	Puerto Rico	Female	49
14	First	Ponce	Puerto Rico	Male	28
15	First	San Juan	Puerto Rico	Female	22
16	First	San Juan	Puerto Rico	Male	22
17	First	Caguas	Puerto Rico	Female	54
18	First	Vega Baja	Puerto Rico	Male	28
19	First	Humacao	Puerto Rico	Female	50
20	First	San Juan	Puerto Rico	Female	50

4.4 Acoustic analysis and coding

An average of 65 tokens were elicited from each participant. As a result, given that 20 speakers participated in the production task, a total of 1,292 phonemic /r/ were analyzed. Sound files were digitally transferred into WAV format and analyzed with the acoustic analysis software Praat (Boersma & Weenink, 2014).

Three separate statistical analyses were carried out with the following dependent variables: Normative vs. non-normative /r/ (i.e., [r] vs. the remaining /r/ realizations found among the data) and backed vs. non-backed /r/. Following Beaton (2015), Delgado-Díaz and Galarza (2015), and Graml (2009), the linguistic factors that might predict different /r/ realizations are stress, word position (initial, intervocalic, after /n,l,s/), previous sound (/a,e,i,o,u/, consonant), and following sound (/a,e,i,o,u/). The sociolinguistic variables include generation (first, second), age (young, middle-aged and older adults), gender (male vs. female), task (picture description task, map task, and reading task), origin (metropolitan vs. non-metropolitan area) and age of arrival to continental United States (early, 20–30 years; middle, 30–50 years; late, 50–60 years).

5. Qualitative results: data description

In the following section, figures of the most common realizations among the overall data analyzed are presented. Next, frequency distribution for both settings under study are detailed.

5.1 Phonetic realizations

Figure 1.1 shows the spectrographic output for a word-medial normative trill, containing two apical occlusions and the corresponding amplitude reduction of the waveform.

Normative trills were separated from approximated trills. This latter realization typically involves the approximation of two articulators but without enough precision in order to create the necessary turbulent airflow and therefore complete occlusions. Since this realization falls between vowels and fricatives, its spectrographic formant structure is not as precisely defined as that of the vowels that surround it. Figure 1.2 shows an example of a 0-occlusion approximated trill for *perro* "dog."

A backed phonemic trill is presented in Figure 1.3. Even though several realizations of backed /r/ have been reported (Graml, 2009), all single voiceless fricative realizations produced in the posterior oral cavity were grouped into the same category (without distinguishing between uvular vs. velar places of articulation). As can be observed in Figure 1.3, we find that a long period of voiceless frication and a reduction of amplitude of the waveform characterize this realization.

Another frequently occurring variant in the corpus is a pre-aspirated /r/. It starts with pharyngeal friction and ends with one [hɾ] or two apical occlusions [hr]. When it is voiced, it correlates with the pre-breathy voiced tap/trill